LIST OF CURRENT CLAIMS

1. (Original) Method of performing geometrical measurements on an object (5), comprising the steps of: illuminating the object (5) with a light beam (2) having a field distribution with substantially constant intensity, so as to obtain, past the object (5), a field distribution with discontinuity points in correspondence with points concerned by the measurement; submitting the beam past the object (5) to a spatial optical filtering; detecting the filtered beam thereby generating an electrical signal representative of the intensity of the field associated with the filtered beam; and obtaining the value of a requested quantity by processing said electrical signal; characterized in that said spatial filtering is a band-pass filtering originating on a detection plane (E) a continuous field distribution that is the sum of a plurality of functions which are identical to one another apart the sign, are centered exactly in correspondence with a discontinuity point and only depend on the characteristics of the band-pass filtering, said field distribution having an intensity exhibiting a pair of marked maxima (100', 101', 100", 101") separated by a minimum (102', 102") in correspondence with each discontinuity point, said processing of the electrical signal providing the position of said minimum (102', 102") relative to an axis of the measurement beam (2).

2. (Original) A method as claimed in claim 1, characterised in that said processing of the electrical signal comprises a band-pass filtering, with temporal cut-off frequencies corresponding with the spatial cut-off frequencies of the optical band-pass filtering.

3. (Currently Amended) A method as claimed in claim 1 ~~or 2~~, characterised in that at least one of said discontinuity points is formed by an edge of the object (5).

4. (Currently Amended) A method as claimed in <u>claim 1</u> ~~any of claims 1 to 3~~, characterised in that said optical band-pass filtering originates, on said detection plane (E), a continuous field distribution comprising, in correspondence with each discontinuity point, oscillating groups of which the oscillation frequencies and the durations depend on the characteristics of the band-pass filtering and the oscillation centre is related with the position of the respective discontinuity point, the oscillation groups having intensities

exhibiting said pair of marked maxima (100', 101', 100", 101") separated by a minimum (102', 102") in accordance with the oscillation centre.

5. (Original) A method as claimed in claim 4, characterised in that said optical band-pass filtering is carried out by means of a filter (8; 28) comprising an opaque region (8'; 28') centred on the axis of the beam (2) and having a first width (w_{lo}), and a transparent region (8'; 28') also centered on the axis of the beam (2) and having a second width (w_{hi}), greater than the first width.

6. (Original) A method as claimed in claim 5, characterised in that said first and second widths (w_{lo}, w_{hi}) meet the condition $2,5 \leq w_{hi}/w_{lo} \leq 7$.

7. (Original) A method as claimed in claim 6, characterised in that said first and second widths (w_{lo}, w_{hi}) meet the condition $w_{hi}/w_{lo} = n$, n being an odd integer number.

8. (Original) A method as claimed in claim 7, characterised in that said first and second widths (w_{lo}, w_{hi}) meet the condition $w_{hi}/w_{lo} = n$, where $n \leq 5$.

9. (Currently Amended) A method as claimed in claim 1 ~~any of claims 1 to 3~~, characterised in that said optical band-pass filtering is carried out by means of a filter comprising opaque and transparent regions asymmetrically arranged with respect to the axis of the beam (2).

10. (Currently Amended) A method as claimed in claim 1 ~~any of claims 1 to 3~~, characterised in that said optical band-pass filtering is carried out by means of a filter having a gradual transmittance variation between regions arranged in correspondence of the pass band and regions arranged in correspondence of bands to be rejected.

11. (Currently Amended) A method as claimed in claim 1 ~~any of claims 1 to 3~~, characterised in that said optical band-pass filtering is carried out by means of a filter consisting of a grating.

12. (Original) An optical device for performing geometrical measurements on an object (5), comprising:

- means for generating a monochromatic light beam (2) having a field distribution with substantially constant intensity, the object (5) being placed along the path of the beam (2) so as to generate, in the field distribution past the object (5) itself, discontinuity points in correspondence with points concerned by the measurement;

- optical processing means (6), comprising a first and a second confocal converging lens (7, 9) and a spatial filter (8; 28) placed in the common focal plane (C) of said lenses, said optical processing means (6) being located past the object (5) so that the latter is located in the focal plane (A) of the first lens (7) opposite to the common focal plane (C);

- detection means (10) located in the focal plane (E) of the second lens (9) opposite to the common focal plane (C), to collect a filtered beam outgoing from the optical processing means (6) and to generate an electrical signal representative of the intensity of the field associated with said filtered beam;

- means (11) for processing said electrical signal, arranged to provide the value of a requested quantity;

characterized in that the spatial filter (8; 28) is a band-pass optical filter originating, on the detection means (10), a continuous field distribution that is the sum of a plurality of functions which are identical to one another apart from the sign, are centred exactly in correspondence with a discontinuity point and only depend on the characteristics of the band-pass filter (8; 28), said field distribution having an intensity exhibiting a pair of marked maxima (100', 101', 100", 101") separated by a minimum (102', 102") in correspondence with each discontinuity point, the electrical signal processing means (11) being arranged to determine the position of said minimum (102', 102") relative to an optical axis of the optical processing means (6).

13. (Original) A device as claimed in claim 12, characterised in that said electrical signal processing means (11) comprises a band-pass filter (12), with temporal cut-off

frequencies corresponding with the spatial cut-off frequencies of the optical band-pass filter (8; 28).

14. (Currently Amended) A device as claimed in claim 12 ~~or 13~~, characterised in that said object (5) is located in the monochromatic light beam (2) at such a position that at least one of said discontinuity points is formed by an edge of the object (5).

15. (Currently Amended) A device as claimed in <u>claim 12</u> ~~any of claims 12 to 14~~, characterised in that said optical band-pass filter (8; 28) is arranged to originate, on said detection plane (E), a continuous field distribution comprising, in correspondence with each discontinuity point, oscillating groups of which the oscillation frequencies and the durations depend on the characteristics of the band-pass filter, and the oscillation centre is related with the position of the respective discontinuity point, the oscillating groups having intensities exhibiting said pair of marked maxima (100', 101', 100", 101") separated by a minimum (102', 102") in correspondence with the oscillation centre.

16. (Original) A device as claimed in claim 15, characterised in that said optical band-pass filter (8; 28) is an element comprising an opaque region (8'; 28') centred on the axis of the beam (2) and having a first width (w_{lo}), and a transparent region (8'; 28') also centred on the axis of the beam (2) and having a second width (w_{hi}), greater than the first width.

17. (Original) A device as claimed in claim 16, characterised in that said first and second widths (w_{lo}, w_{hi}) meet the condition $2,5 \leq w_{hi}/w_{lo} \leq 7$.

18. (Original) A device as claimed in claim 17, characterised in that said first and second widths (w_{lo}, w_{hi}) meet the condition $w_{hi}/w_{lo} = n$, n being an odd integer number.

19. (Original) A device as claimed in claim 18, characterised in that said first and second widths (w_{lo}, w_{hi}) meet the condition $w_{hi}/w_{lo} = n$, where $n \leq 5$.

20. (Currently Amended) A device as claimed in <u>claim 12</u> ~~any of claims 12 to 19~~, characterised in that said first lens (7) is a cylindrical lens, with generatrices parallel with the given direction.

21. (Currently Amended) A device as claimed in <u>claim 16</u> ~~claims 16 and 20~~, characterised in that the opaque and transparent regions (8', 8") of the spatial filter have elongated shape, are parallel with the generatrices of the cylindrical lens (7) and have a length determined by the viewing range of said cylindrical lens (7).

22. (Currently Amended) A device as claimed in <u>claim 16</u> ~~any of claims 16 to 19~~, characterised in that the transparent region (28") is an annulus surrounding the opaque region (28').

23. (Currently Amended) A device as claimed in <u>claim 12</u> ~~any of claims 12 to 14~~, characterised in that said optical band-pass filter is a mask comprising opaque and transparent regions asymmetrically arranged with respect to the axis of the beam (2).

24. (Currently Amended) A device as claimed in <u>claim 12</u> ~~any of claims 12 to 14~~, characterised in that said optical band-pass filtering is a mask having a gradual transmittance variation between regions arranged in correspondence with the pass band and regions arranged in correspondence with bands to be rejected.

25. (Currently Amended) A device as claimed in <u>claim 12</u> ~~any of claims 12 to 14~~, characterised in that said optical band-pass filter consists of a grating.